

## Claims

- 5 1. Coating for a mechanical part comprising at least one external layer (5) of hydrogenated amorphous carbon, characterized in that the coating (1) is formed by a first layer (3) of hydrogenated amorphous silicon carbide designed to be in contact with the mechanical part (2), a stack (4) formed by an alternation of layers (4a, 4b) respectively of hydrogenated amorphous carbon and hydrogenated amorphous silicon carbide being arranged  
10 between the first layer (3) and the external layer (5).
2. Coating according to claim 1, characterized in that the total thickness of the coating (1) is comprised between 10 and 20 micrometers.
- 15 3. Coating according to one of the claims 1 and 2, characterized in that the thickness of the first layer (3) is comprised between 150 and 300 nanometers.
- 20 4. Coating according to any one of the claims 1 to 3, characterized in that the thickness of the external layer (5) is comprised between 0.5 and 2 micrometers.
- 25 5. Coating according to any one of the claims 1 to 4, characterized in that the thickness of each of the layers (4b) of hydrogenated amorphous silicon carbide of the stack (4) is comprised between 5 and 50 nanometers.
6. Coating according to any one of the claims 1 to 5, characterized in that the thickness of each of the layers (4a) of hydrogenated amorphous carbon of the stack (4) is comprised between 10 and 150 nanometers.

7. Coating according to any one of the claims 1 to 6, characterized in that the number of layers (4a, 4b) in the stack (4) is comprised between 400 and 1000.
- 5 8. Method of depositing a coating for a mechanical part (2) according to any one of the claims 1 to 7, characterized in that it consists in depositing, successively, in a same plasma enhanced chemical vapour deposition enclosure:
- a first layer (3) of hydrogenated amorphous silicon carbide,
  - 10 - an alternation of layers (4a, 4b) respectively of hydrogenated amorphous carbon and hydrogenated amorphous silicon carbide,
  - and an external layer (5) of hydrogenated amorphous carbon.
- 15 9. Method of depositing according to claim 8, characterized in that the pressure in the enclosure, when deposition of the layers is performed, is comprised between 0.05mBar and 0.5mBar.
- 20 10. Method of depositing according to one of the claims 8 and 9, characterized in that the mechanical part (2) is previously cleaned and is subjected to an ionic stripping.

**Claims**

1. Coating for a mechanical part comprising :
  - 5       - a first layer of hydrogenated amorphous silicon carbide designed to be in contact with the mechanical part,
  - a stack formed by an alternation of layers respectively of hydrogenated amorphous carbon and hydrogenated amorphous silicon carbide
  - and an external layer of hydrogenated amorphous carbon,
  - 10       the stack being arranged between the first layer and the external layer.
2. Coating according to claim 1, wherein the coating has a total thickness comprised between 10 and 20 micrometers.
- 15 3. Coating according to one of the claims 1 and 2, wherein the first layer has a thickness comprised between 150 and 300 nanometers.
4. Coating according to claim 1, wherein the external layer has a thickness comprised between 0.5 and 2 micrometers.
- 20 5. Coating according to claim 1, wherein each of the layers of hydrogenated amorphous silicon carbide of the stack has a thickness comprised between 5 and 50 nanometers.
- 25 6. Coating according to claim 1, wherein each of the layers of hydrogenated amorphous carbon of the stack has a thickness comprised between 10 and 150 nanometers.
- 30 7. Coating according to claim 1, wherein the stack comprises a number of layers comprised in between 400 and 1000.

**8.** Method of depositing a coating for a mechanical part according to claim 1, consisting in depositing, successively, in a same plasma enhanced chemical vapour deposition enclosure:

- a first layer of hydrogenated amorphous silicon carbide,
- an alternation of layers respectively of hydrogenated amorphous carbon and hydrogenated amorphous silicon carbide,
- and an external layer of hydrogenated amorphous carbon.

**9.** Method of depositing according to claim 8, wherein the pressure in the enclosure, when deposition of the layers is performed, is comprised between 0.05mBar and 0.5mBar.

**10.** Method of depositing according to claim 8, wherein the mechanical part is previously cleaned and is subjected to an ionic stripping.